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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/021,874	12/17/2001	Roy Franklin Quick JR.	PA000310	2739

23696 7590 08/10/2005

Qualcomm Incorporated
Patents Department
5775 Morehouse Drive
San Diego, CA 92121-1714

EXAMINER	
POWERS, WILLIAM S	

ART UNIT	PAPER NUMBER
2134	

DATE MAILED: 08/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/021,874	QUICK ET AL.	
	Examiner	Art Unit	
	William S. Powers	2134	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 December 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-39* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-39* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 December 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *4/29/2002*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-39 have been examined.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: figure 1, reference number 134. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The disclosure is objected to because of the following informality: Antenna 124 is not connected to base station 136 in Figure 1 (paragraph 1018, lines 6-7).

Appropriate correction is required.

Claim Objections

4. Claims 5, 15 and 33 objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. It is inherent that a hashing step would use a hash function. Therefore, claims 5, 15 and 33 do not further limit claims 1, 11 and 29, respectively.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 11, 28 and 29 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The claims state that the assignment table index is encrypted to generate the temporary mobile subscriber identifier (TMSI), but the specification states that the TMSI "is generated by encryption of the counter value" (page 9, paragraph 1025, lines 2-3). The counter value is "hashed to obtain an assignment table index" (page 8, paragraph 1023, lines 1-2). There is no mention of using the assignment table index to determine the TMSI or how to combine the assignment table index and counter value to obtain the TMSI.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 29 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 29 recites the limitation "said temporary identifier" in lines 7-8 of the claim. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1, 3, 5-9, 11, 13, 15-19, 21-27, 29, 31, 33-35 and 37-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,044,069 to Wan in view of U.S. Patent No. 5,375,251 to Pfundstein.

As to claims 1, 11, 29 and 37, Wan teaches:

a. The use of a database that contains information for each mobile subscriber associated with a particular VLR (column 17, lines 1-13).

b. Maintaining a counter value (column 17, lines 28-40).

c. Hashing counter value to get a database index or short page identity value (SPI) (column 17, lines 28-40).

d. Storing a TMSI in said VLR database (column 17, lines 14-22).

Although Wan teaches a counter and generating and assigning the TMSI to a mobile subscriber, the method of generation is not expressly mentioned.

Pfundstein teaches the encoding of the TMSI with the generation parameter index that is incremented after each use (column 3 line 62-column 4, line 35), like the

counter of the applicant. This precludes the possibility of assigning the same TMSI to different subscribers in a VLR.

Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to implement the invention of Wan with the TMSI generation procedure of Pfundstein to preclude the possibility of assigning the same TMSI to different subscribers in a VLR.

As to claim 3, 13 and 31, Wan teaches a counter with a predetermined number of bits (column 17, lines 28-37).

As to claim 5, 15, 26, 33 and 39, Wan teaches the use of a hash function (column 17, lines 23-45).

As to claim 6 and 16, Wan teaches storing identifying numbers in the VLR (column 17, lines 1-5).

As to claim 7, 17 and 22, Wan teaches storing the counter value with the identification numbers (column 17, 23-45).

As to claim 8, 18, 24 and 34, Wan teaches the use of a temporary mobile subscriber (or station) identifier (column 17, lines 14-22).

As to claim 9, 19, 23 and 35, Wan teaches the use of an international mobile subscriber identifier (column 17, lines 1-5).

As to claim 21, Wan teaches:

a. A mobile switching center (column 17, lines 14-15).

b. A visitor location register (column 17, lines 1-5).

c. Storing and assigning identifiers (column 17, lines 1-45).

d. Maintaining a counter value (column 17, lines 28-30).

e. Generating a temporary identifier (column 17, lines 1-45).

Although Wan teaches a counter and generating and assigning the TMSI to a mobile subscriber, the method of generation is not expressly mentioned.

Pfundstein teaches the encoding of the TMSI with the generation parameter index that is incremented after each use (column 3 line 62-column 4, line 35), like the counter of the applicant. This precludes the possibility of assigning the same TMSI to different subscribers in a VLR.

Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to implement the invention of Wan with the TMSI generation procedure of Pfundstein to preclude the possibility of assigning the same TMSI to different subscribers in a VLR.

As to claim 25, although Wan teaches a counter and generating and assigning the TMSI to a mobile subscriber, the method of generation is not expressly mentioned.

Pfundstein teaches the encoding of the TMSI with the generation parameter index that is incremented after each use (column 3 line 62-column 4, line 35), like the counter of the applicant. This precludes the possibility of assigning the same TMSI to different subscribers in a VLR.

Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to implement the invention of Wan with the TMSI generation procedure of Pfundstein to preclude the possibility of assigning the same TMSI to different subscribers in a VLR.

As to claim 27, Wan teaches hashing the counter value to get a database index or short page identity value (SPI) (column 17, lines 28-40).

As to claim 38, Wan teaches a counter and generating and assigning the TMSI to a mobile subscriber, but the method of generation is not expressly mentioned.

Pfundstein teaches the encoding of the TMSI with the generation parameter index that is incremented after each use (column 3 line 62-column 4, line 35), like the counter of the applicant. This precludes the possibility of assigning the same TMSI to different subscribers in a VLR.

Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to implement the invention of Wan with the TMSI generation procedure of Pfundstein to preclude the possibility of assigning the same TMSI to different subscribers in a VLR.

8. Claims 2, 12 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,044,069 to Wan in view of U.S. Patent No. 5,375,251 to Pfundstein in further view of U.S. Patent No. 5,123,111 to Delory et al. (hereto referred to as Delory).

As to claims 2, 12 and 30, Wan implicitly teaches a limited number of mobile subscribers in a service area because the number of TMSI is limited to a 32-bit number (column 17, lines 14-15), but does not expressly mention the actual number of users.

Delory teaches the capacity of up to 256,000 users in a service area depending on the addressing mode (column 5, line 57-column 6, line 11). In this way the actual number of remaining available addresses is known.

Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to implement the invention of Wan with the predetermined number of users of Pfundstein. In this way the actual number of remaining available addresses is known.

9. Claims 4, 14 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,044,069 to Wan in view of U.S. Patent No. 5,375,251 to Pfundstein in further view of "Handbook of Applied Cryptography" by Menezes et al. (hereto referred to as Menezes).

As to claims 4, 14 and 32, Wan teaches a counter and generating and assigning the TMSI to a mobile subscriber, but the method of generation is not expressly mentioned.

Pfundstein teaches the encoding of the TMSI with the generation parameter index that is incremented after each use (column 3 line 62-column 4, line 35), like the counter of the applicant, but does not expressly mention the bit length of the encoding method.

Menezes teaches the use of a block cipher "which maps n-bit plaintext blocks to n-bit cipher text blocks" (page 224, 4th paragraph) in order to avoid data expansion.

Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to implement the invention of Wan and Pfundstein with the block cipher of Menezes in order to avoid data expansion.

10. Claims 10, 20 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,044,069 to Wan in view of U.S. Patent No. 5,375,251 to Pfundstein in further view of "Data Structures and Other Objects Using C++" by Main et al. (hereto referred to as Main).

As to claims 10, 20 and 36, Wan teaches the use of a hash function to find an index in the VLR to place the information of the mobile subscriber (column 17, lines 23-45), but does not expressly state that the VLR starts at that index.

Main teaches the general use of a hash function and that the index obtained from said hash function is the starting point of any search within a database (page 571) in order to increase the efficiency of the database.

Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to implement the invention of Wan with the index search of Main in order to increase the efficiency of the database.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 6,225,888 to Juopperi discloses the use of a hash function.

U.S. Patent No. 6,373,949 to Aura discloses the use of TMSI, IMSI and a hash function.

U.S. Patent No. 5,539,921 to Tayloe discloses the use of TMSI, IMSI and registration tables.

U.S. Patent No. 5,889,861 to Ohashi et al. discloses the use of TMSI, IMSI and registration tables.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to William S. Powers, whose telephone number is (571)

272-8573. The examiner can normally be reached Monday-Thursday from 8 AM – 4:30 PM Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Morse, can be reached at (571) 272-3838.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
PO Box 1450
Alexandria, VA 22313-1450

Or faxed to:

(571) 273-8300

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at (886) 217-9197 (toll-free).

WSP

July 26, 2005

GREGORY MORSE
SUPERVISORY PATENT EXAMINER
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MM